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ABSTRACT

New York University (NYU) Libraries received a 1-year grant from the Association of Research Libraries to study users' responses to its recently installed Geac online catalog, Bobcat (Bobst Library Computerized Catalog). The survey instrument, developed for Council on Library Resources (CLR)-funded national study of responses to public access catalogs, was used to gather data from 810 online catalog users and 477 non-users during the 1983-1984 academic year. This final report on the study of the online catalog from a public services perspective contains sections on: previous public catalog research; the hypotheses developed to study the relationships between levels of satisfaction with the online catalog and user success with the system; the research site; the research procedure (instruments, data collection, the sample, and data analysis); study data and detailed results of the CLR Study, and a brief discussion of the results of the NYU and the Interview Studies. A final discussion reveals that as expected, users participating in the study generally liked the computer catalog and had few complaints. Even respondents who had little or no experience using Bobcat often rated it favorably, considered it a satisfactory place to search, and preferred it to the card catalog. The improvements most frequently requested involved increasing the number and availability of terminals rather than changing system features. Appendices include supplemental questions for the user and non-user questionnaires and the NYU and Interview Study data. (THC)

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A STUDY OF AN ONLINE CATALOG FROM A PUBLIC SERVICES PERSPECTIVE
FINAL REPORT

New York University Libraries

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Christina M. Spellman
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Office of Management Studies
Association of Research Libraries
Washington, D.C.
December, 1984

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Abstract

New York University Libraries received a one-year grant from the Association of Research Libraries to study users' responses to its recently installed Geac online catalog named Bobcat. The survey instrument developed for the Council on Library Resources-funded national study of responses to public access catalogs was used to gather data from 810 online catalog users and 477 non-users. The results of the study indicate a high acceptance of the online catalog and also provide an extensive profile of library users. Compared and contrasted with another study conducted simultaneously at NYU, the findings suggest that users express a high degree of satisfaction in using the online catalog regardless of the degree of actual success with locating an item in the catalog.

The fact that users were highly enthusiastic about the online technology confirmed the initial impetus of this research: to test whether Marshall McLuhan's provocative assertion, "the medium is the message," might be operating at libraries with computerized catalogs. McLuhan writes:

> In a culture like ours, long accustomed to splitting and dividing all things as a means of control, it is sometimes a bit of a shock to be reminded that, in operational and practical fact, the medium is the message. This is merely to say that the personal and social consequence of any medium...result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology... (McLuhan, 1964, 23).

If McLuhan is correct, then the efficiency attributed to Bobcat and the enthusiasm it elicits might in part result from the new scale that is introduced into the research process by the medium of the online catalog. Perceptions that the system was faster than the card catalog and that it yielded more items were, in fact, reported by many of the Bobcat interviewees.

Whether these social psychological assessments will continue to be associated with Bobcat is a question for further research. Certainly, if the literature on the diffusion of innovations is consulted, a projection could be made that with time, assessments regarding specific information sought and anticipated yields should become more realistic and normative.

I. INTRODUCTION

In 1978, librarians at New York University (NYU) initiated plans for an online catalog. With the help of consultants from all over the country, they designed the specifications for a system that would satisfy their users' needs and, at the same time, serve the needs of other libraries desiring to replicate New York University's system. To develop the software and to provide the hardware for the system, they contracted with Geac, the vendor whose circulation system New York University had purchased. It was agreed that Geac would retain the rights to the system and market it to other libraries. Integral to this implementation of online technology was a concern for users' success and a commitment to a system that was user friendly.

In June 1983, New York University installed its online library catalog, calling it Bobcat for Bobst Library Computerized Catalog. The data base now includes 370,000 titles representing about one third of the Bobst Library holdings and comprising all titles processed and/or circulated since 1974. The mini-computer based system has search capabilities by author, title, author and title combined, subject, keyword, call number, international standard book/serial number, and Library of Congress card number. There are 100 public terminals available in several of New York University's libraries.

Since New York University began developing specifications for its online catalog in 1981, the world of online catalog development has expanded rapidly. Several libraries throughout the country have implemented similar systems followed by a series of research projects to evaluate the use and effectiveness of online catalogs. The Council on Library Resources (CLR) has led the way in this by funding a series of studies that document the current state of online catalog use. In accordance with this, Bobst Library received funds to conduct an evaluation of the effectiveness of the system from both the viewpoint of user satisfaction and of actual effectiveness or success in a search.

II. PUBLIC CATALOG RESEARCH

Montagne (1967) surveyed card catalog use studies between 1949 and 1965 and found that over 100 had been conducted. Krikelas (1972) reviewed 50 to 60 studies that examined catalog use but did not include those that compared a bibliography against a library's card catalog. Hafter (1979) in a review of card catalog research emphasized that most early studies (pre-online catalogs) were concerned with evaluating catalog use at a particular site, the type of entries most used, the merits of different catalog arrangements and the value of the different types of bibliographic information available in the catalog. Generally speaking, the goal of most of these studies was to enhance the card catalog and to assess user performance. Unfortunately, much of this early research was handicapped by poor methodology which limited the usefulness of results for future planning. One exception to the site-specific orientation of most studies was one done in 1958 by the American Library Association that compared catalog use in 39 libraries (1958, cited in Hafter).

As alternatives to the card catalog were considered in the late 1960's and 1970's, a new direction in catalog research emerged and issues of methodology began to take a more prominent role. The purpose of these more recent studies, in part, was to design search strategy algorithms for computerization.

Studies, such as the one by Lipetz at the Yale University Library (1970), began to document user requirements and performance using random sampling techniques. Lipetz surveyed users at the beginning of a search and then at the completion.

His study report included a discussion of environmental considerations, including the tendency of respondents to use the card catalog when they first enter the library. Types of searches were categorized and users' estimates of success were analyzed. For the purposes of the NYU study design, Lipetz's research design and his results were examined.

The finding that Yale users undertook 73% known item, 16% subject, 6% author and 5% bibliographic searches became a standard against which other library populations were compared. Also, Lipetz determined that 84% of the document searches were successful and that this rate was fairly consistent among all types of users and different levels of education. Of those searches that resulted in failure, more than half were attributed to no record being present in the file rather than poor search strategy.

Two other card catalog studies served as useful precedents for New York University. Palmer (1972) at the University of Michigan surveyed users in 1967 regarding the type of search that they conducted and levels of success. Most searches (approximately 70% of 5,067 survey units) were known item searches with a reported success rate of 84%. The second study, conducted by Tagliacozzo and Kochen (1970) at Michigan, was a large survey of search behavior patterns. Catalog users were interviewed before and during their searches. This enabled researchers to assess what the user did in the event of a failure to retrieve the desired information as well as to document types of searches and search strategies. The authors treated issues such as perseverance on the part of the searcher and the complexity of assessing the effectiveness of subject searches. Lancaster (1977) in reviewing this study cited the following quote which illustrates the difficulties involved in studies of success:

> Success or failure of the search results from the interplay of two basically distinct sets of variables. The first set, which is related to the matching of the user's query term to a catalog entry, may include such things as the skill and resourcefulness of the user, his persistence, his familiarity with catalog rules; it may also include the availability of subject headings relevant to the topic of his query and the availability of cross-references connecting related subject headings in the area of the search. The second set of variables has to do with the user's acceptance of the retrieved material and therefore concerns the user's expectations and attitudes, his satisfaction with the retrieved information, his knowledge of the topic and his ability to discriminate between what is relevant and what is not (cited Lancaster, 1977, 36).

Hafter (1979) summarizes, in a review article, a major problem in the design of catalog studies:

> In all fairness to the catalog researchers, it must be acknowledged that defining what people do at the catalog and what constitutes success is not easy. Perhaps even more important are the difficulties associated with reaching appropriate sample size, the construction of the sampling frame, the data gathering procedure, and the techniques of analysis....These problems appear to cause even more trouble for catalog use studies than for most information gathering surveys (Hafter, 1979, 203).

In 1981, a series of studies addressing user reactions to online catalogs began to appear. Moore (1981) reported on the positive reception of online catalogs at four Canadian libraries including the University of Toronto. Her results corroborated Lancaster's (1977) discussion on catalog research, which pointed out that items not found in a user's initial search attempt were generally never retrieved. Still, users continue to evaluate the online catalog favorably. Moore commented:

> Perhaps the most important conclusions to be drawn from users' written responses as well as observed reactions was that all four online systems, rough, incomplete and imperfect as they were, were welcomed overwhelmingly by most library users. Moreover, users felt the online catalog was a tremendous improvement in convenience. In the words of one user, the online system is "the best way I know to find a book easily" (Moore, 1981, 301-3).

Gouke and Pease (1982) pioneered research on the reception and use of the Ohio State University online catalog. In their first study they compared patron success in finding the same titles in both the online and public card catalogs at two departmental libraries. Their strategy was to select titles that were listed in both the online and card catalogs and then randomly to choose users to search for the titles. A comparison of users' success with the findings of a librarian showed that patrons were more successful with the card than the online catalog. Though the results were more favorable to the card catalog, one patron commented, "I know that I do better in the card catalog...but I still prefer the online" (Pease and Gouke, 1982, 143). Using the same methodology, these researchers (1982b) re-analyzed their data. In addition, they examined patrons recording their own searches at both catalogs. As in their earlier study, Pease and Gouke found that most patrons using the online catalog preferred it, although success depended on a well defined search object and skill at using the catalog.

In 1981 the Council on Library Resources funded the largest inquiry to date on users' assessments of online catalogs. Five organizations — the Research Libraries Group, the Library of Congress, J.R. Matthews and Associates, Inc., the Online Computer Library Center (OCLC) and the University of California — collaborated to produce and analyze a questionnaire that assessed user attitudes toward online catalogs. Questionnaires, one for online users and another for non-users (library patrons who had never used the online catalog), were developed for use at 29 libraries which agreed to participate in the study.

The goals of the questionnaire survey were:

1. to produce data for analysis that would enable designers of public online catalogs to improve online catalog system interface features. The system interface includes commands, displays, indexes, and similar software and hardware related features;

2. to gather data and prepare an analysis that would enable libraries to improve the implementation and support services for public access online catalogs; and

3. to collect additional data that would enable libraries to extend public access online catalog services to patrons who were not yet users (Matthews, Lawrence, Ferguson, 1983, 5-6).

Responses were collected in the following four areas:

1. questions and purposes users bring to the computer catalog.

2. problems with the system interface and the organization interface;

3. preferences for improving the databases system features and organization features; and

4. demographic characteristics of users (ibid., 6).

The results of this study showed that 80% of users of online catalogs reported relatively high levels of satisfaction with the new technology and that 84% found at least some of what they were looking for. Many of the libraries included in the study had systems that were not yet fully developed. This led researchers at New York University to question the meaning of such high levels of satisfaction when using the catalog.

These findings, combined with the high levels of enthusiasm showed by Bobcat users, prompted the New York University Library to apply for funds to conduct an evaluation of its online catalog system. By using the questionnaires developed for the 29 library CLR Study, New York University users' attitudes could be compared with other library users. Funds from the Association of Research Libraries were received to replicate the CLR Study at the main New York University library.

Since user success, defined as finding the item sought, is a priority in service delivery, the New York University Library developed another proposal for a study which would go deeper into success-related issues than the CLR questionnaires allowed. Part of this inquiry involved examining the relationships between users' assessments of satisfaction with the catalog used and both actual success (finding the item) and perceived success (attitude). In fact, one of the compelling reasons for conducting a study at this point was that the data would provide an assessment of how much users were getting from the system. The enthusiasm demonstrated by so many of the users was of some concern to the Library, since during 1984 the full capacity of the system had not been developed. Several key components were lacking that were present in the card catalog: only one-third of the records were included, there was no authority control and there was no subject cross-referencing. Funds were received from the Council on Library Resources to carry out this study.

III. HYPOTHESES

In order to study the relationships between the satisfaction levels that have been associated with the implementation of the online catalog and actual user success with the system, the following hypotheses were developed:

HYPOTHESES 1A: The reception of the online catalog technology at New York University was similar to that detailed in the CLR Study of 7 ARL libraries.

HYPOTHESES 1B: Non-users of the online catalog (i.e. those who have never had an opportunity to or have chosen not to use the online catalog), held a

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similar view regarding the online technology to respondents in the 7 ARL library study.

HYPOTHESES 2A: The evaluation of the online catalog was favorable among users regardless of the success of their searches.

HYPOTHESES 2B: Non-users evaluated the online catalog favorably despite their never having used it.

IV. NEW YORK UNIVERSITY LIBRARIES AND THE RESEARCH SITE

Seven distinct libraries at the University contain nearly three million volumes. The Elmer Holmes Bobst Library and Study Center -- opened in 1973 -- is one of the largest open-stack research libraries in the nation. Designed for easy access, the library has nearly two million books, journals, microforms, and other materials located in stacks where students are free to browse. The library also has hundreds of study carrels interspersed among the open book stacks plus five major reading rooms; up to 4,200 students may comfortably study at any one time.

Both Bobcat and the card catalog are located on the main floor. Each floor has additional Bobcat terminals. Catalog assistance is available at the first floor information desk while reference assistance can be obtained in the first floor general reference area, in the Social Science Documents center on the seventh floor, and in the Science Center on the ninth floor. The library also houses separate centers for music and media and language instruction.

Other libraries at New York University include the Graduate School of Business Administration Library, the Institute of Fine Arts Library, the Courant Institute of Mathematical Science Library, the School of Medicine Library, the School of Dentistry Library, and the School of Law Library. While the Graduate School of Business Administration Library was expected to participate in the study, the data collected there was not sufficient to analyze separately for the purposes of this report. Neither were data from any of the consortium libraries that share NYU'S online catalog included in the study results.

V. RESEARCH PROCEDURE

In an attempt to evaluate the effectiveness of New York University's online catalog (Bobcat), to describe users' attitudes toward the system, and to assess users' stated levels of satisfaction relative to success, a three-part study was implemented. Part I, the "CLR Study," was funded by the Association of Research Libraries and Part II, the "NYU Study," was funded by the Council on Library Resources. Both were carried out during the 1983-84 academic year. Part III, the "Interview Study," also funded by CLR, was conducted during the Summer 1984. Each component of this larger study used different but complementary measurement instruments and attempted to address different aspects of the research questions.

1) CLR Study: The CLR (Council of Library Resources) study attempted to assess the attitudes and perceptions concerning the online catalog of both users and non-users of the system. A non-user was defined as any person who had never used the computer catalog at New York University.

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2) NYU Study: The NYU Study tried to examine the search patterns and attitudes of both computer and card catalog users. Additionally, the successfulness of the respondents' inquiry was assessed through a replication of the search, using information provided on the questionnaire. The study was conducted in both the computer and the card catalog to allow for comparability across types of catalog. Two factors were critical to this decision: the incomplete state of the computer catalog, and the pattern found in earlier studies that there is a drop-out population of dissatisfied computer catalog users.

3) Interview Study: The Interview Study attempted to describe the search process and identify problem areas for both computer and card catalog users. The respondent's attitudes toward the catalog searched and the library in general were also examined. This study was considered a pilot due to the complexity of the objectives, asymmetry with the other instruments, and time constraints which limited its testing prior to use.

A. INSTRUMENTS

Each of the three components of the NYU study employed a different assessment tool. Within each phase, two or more versions of each form were utilized.

1) CLR Study: The CLR study used both the User and Non-user Council of Library Resources Computer Catalog Study Questionnaires. Developed in 1981, these forms have been used in studies of online catalogs at over 29 library systems across the country. For further details concerning the history and construction of these questionnaires, see Ferguson (1982).

a) User Questionnaire: The 59-item User Questionnaire is divided into 4 sections. It requests: 1) information about the respondent's computer catalog search and an assessment of his or her success; 2) opinions concerning specific features of the computer catalog; 3) ways of changing or improving the system; and 4) demographic information concerning both the individual and his or her usage of the library facilities. Five supplemental questions were added to most of the forms. These specifically asked what constituted a successful search and whether an online catalog is preferable to a card catalog. (Copies of supplemental questions are in Appendix A.)

b) Non-User Questionnaire: The 15-item non-user questionnaire attempts to assess why the respondent has never used the computer catalog. In addition it requests the same demographic information as the user questionnaire. Four supplemental questions (see Appendix A), added to most of the forms, attempted to elaborate upon these issues and asked for a definition of a successful search.

2) NYU Study: The NYU Study included both a computer catalog and a card catalog questionnaire. These were developed by Herbert Menzel, a New York University sociologist and a member of the project's advisory board, in cooperation with the research team. The questionnaires examined type and strategy of search relative to the CLR indicators of success and satisfaction. Both the Bobcat and card catalog questionnaires were divided into two sections.

Part 1 of the NYU Study questionnaire requested procedural and outcome information about a single search. It utilized a skip pattern to track the user's search (i.e. the respondent was instructed to "skip" questions

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depending upon the answer to a previous item). This procedure allowed each questionnaire to address issues specific to certain types of searches without requiring respondents to answer questions irrelevant to the search conducted.

To obtain equal numbers of author, subject and title searches a screening procedure was established, based upon the distribution of searches as reflected in the first phase of the CLR study. The screening system prioritized the types of search the respondent was instructed to track when a multiple search had been conducted. In all other cases, a single search was examined regardless of type.

Part 2 of the special study questionnaire was adapted from parts I and IV (questions concerning attitudes toward the search just completed and demographic information) of the CLR instrument and it also included the supplemental questions.

Both the Bobcat and card catalog NYU study questionnaires requested the same information. Where necessary, however, specific wording was modified to orient the respondent toward the catalog being searched. In addition, 17 questions were added to the card catalog questionnaire to help assess opinions about specific features of this catalog. These were adapted from the Likert-type opinion questions on the CLR user form. The NYU questionnaires were tested at NYU's Bobst Library prior to their use in this study. Based upon this pilot phase, it was found that subjects were able to follow the instructions and the skip pattern.

3) Interview: An observation-recording procedure and structured interview were developed by Christina Spellman, the project's Research Director, for use with both computer and card catalog users. These were intended to assess search strategy, user perseverance, user standards of effectiveness, success, and the complexity of the search being conducted. Upon agreement by the subject, the interviewer attempted to observe unobtrusively the search process while recording all steps taken. This was followed by a structured interview, which examined attitudes toward the specific catalog searched and toward the library in general. The demographic information requested was the same as collected in the other phases of the study.

B. DATA COLLECTION

Both the CLR Study and NYU Study were administered during the 1983-1984 academic year. The interviews were conducted during the following summer session. Among the subjects screened from the sample were library staff and repeaters. Volunteers were permitted to complete a questionnaire but their responses were not included in the final results. Table 1 presents the schedule for data collection. Emphasis in this report is placed on the CLR Study. Information regarding the NYU or Interview Studies can be obtained from New York University, Bobst Library.

1) CLR Study: Data were collected for the CLR study during two periods; the first was between December 1983 and February 1984 and the second was between March 1984 and June 1984. As Table 1 indicates, the majority of questionnaires were completed during the second period. The supplemental questions were added during this time. Additionally, a subsample of 24 user and 22 non-user questionnaires were distributed at the Graduate

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Business School (GBA) Library. Because of the limited sample size, these forms were used for internal library purposes and not included in the frequency tables.

It was originally planned that data be collected at the New School for Social Research, a member of the Research Library Association of South Manhattan. This consortium of neighboring libraries uses the New York University catalog and members were scheduled to implement Bobcat during 1984. Due to a slowed installation, however, the New School's catalog was not operational at the time of data collection.

Following guidelines established for the Council on Library Resources Study, time blocks of four hours each were established during which 25 questionnaires were distributed. The time blocks were randomly selected to reflect high, medium and low periods of catalog usage as indicated by the number of questions asked by catalog users during the previous year. These blocks were scattered throughout morning, afternoon, and evening hours on both weekdays and weekends. Questionnaires were distributed by members of the research team and volunteer librarians. At no time were two different types of forms (either user and non-user or CLR and NYU Study) distributed during the same time block. When periodic interruptions in the computer catalog system occurred, the CLR study rules on suspending data collection for a brief interval were followed. Only one period was cancelled due to the system being down for more than 15 minutes.

a) Administration of the CLR User Questionnaire: Twenty-five time blocks were established for collection of the CLR user data, plus one for collection at the GBA library. The fifteen volunteers who collected data approached every other person leaving a terminal. Those who agreed to participate and met the screening criteria were given a form to complete.

b) Administration of the CLR Nonuser Questionnaire: Seventeen time blocks were established for collection of the nonuser data. During each time block, every other person entering the library was questioned about online catalog use until 25 forms were completed. Those who had never used the New York University computer catalog were then asked to participate by one of the 15 data collectors.

TABLE 1
STUDY FORMAT

Instruments	# Completed
CLR Study	
Phase I - December 83-Feb.84	
User	120
Nonuser	50
Phase II - April 84-May 84	
User-NYU	690
-GBA	22
Nonuser-NYU	423
-GBA	24
NYU Study - April 84-May 84	
Bobcat	218
Card	116
Interview Study - June 84-July 84	
Bobcat	28
Card	24
Both	2

C. SAMPLE

1) Library Users

Patrons of New York University's Elmer Holmes Bobst Library served as the subject pool for this study. In addition to students and faculty, New York University alumni, the community and members of the Research Library Association of Lower Manhattan have access to the library. Although the exact number of catalog searches is unavailable, turnstile records provide an indication of library usage. Table 2 presents monthly data for the periods of data collection. Although this information may not directly reflect catalog usage, it provides a proxy for the universe of New York University library users.

As indicated by the library records, the primary users of the library are students. New York University provides undergraduate, graduate, professional, and continuing education programs. During the Spring 1983-84 term, when the majority of CLR and all of the NYU Study questionnaires were completed, the entire enrollment for all divisions of the University was 44,433. This included 7,833 professional students (Law, Medical, Dentistry and Business), who have special libraries available to them (Tables 3A & 3B). Thirty eight percent of the total enrollment were part-time students. During the summer semester, when the interviews were conducted, enrollment was lower and the students differed from those attending New York University during the academic year. These differences included numbers of students from other institutions, lower enrollments in different departments and schools, and a higher incidence of metropolitan area users due to referrals from the New York Public Library's major research branch, which was undergoing construction. Nevertheless, considering the time constraints, it was decided that with proper screening this would be a suitable pilot population for developing and testing the interview component.

All data collection occurred on the first floor of the library. Although computer terminals are located throughout the building, the greatest number (16 terminals at the time of data collection) were located on the ground floor. Additionally, the card catalog is located in this same area. Maps of the data collection site follow.

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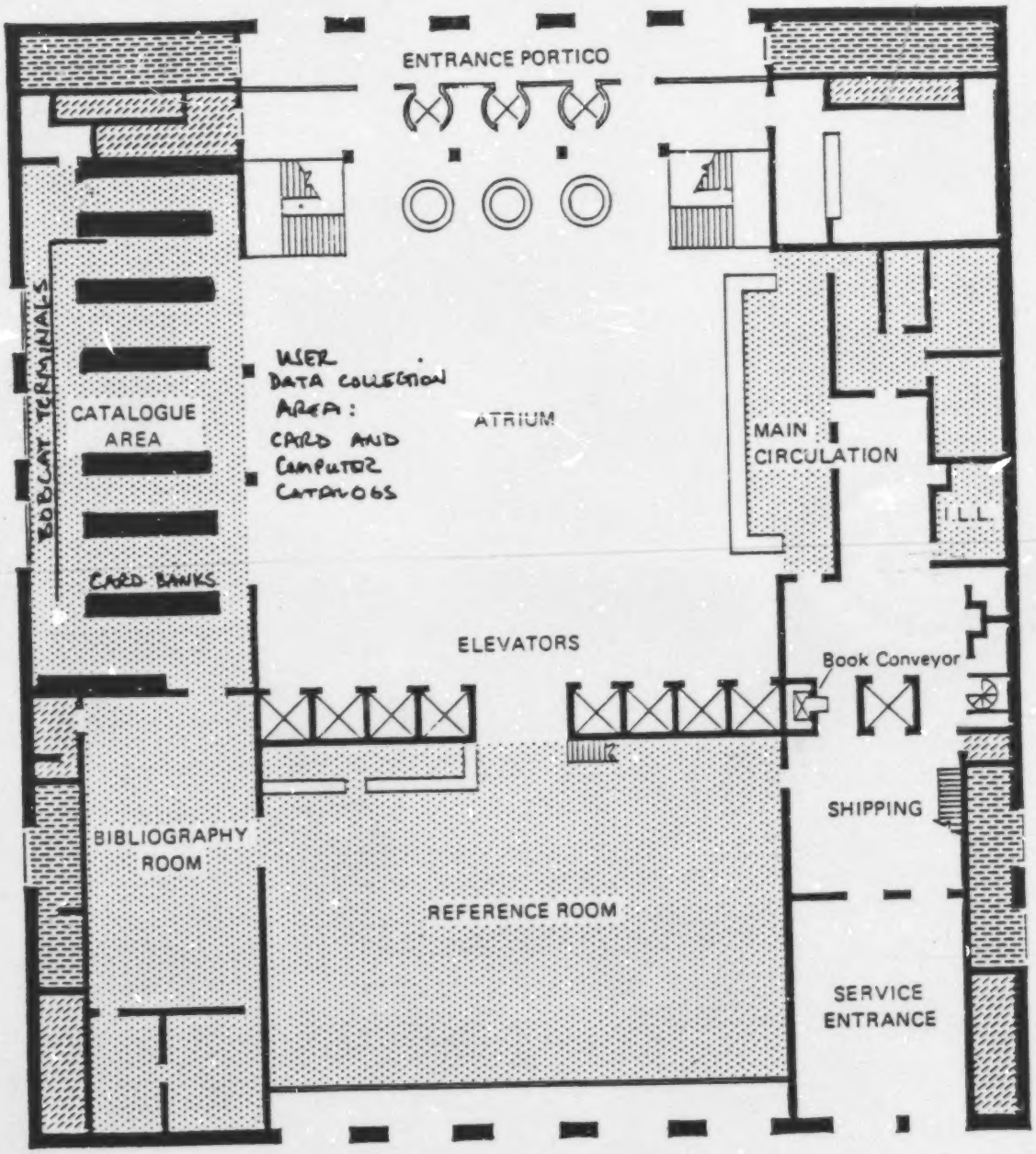
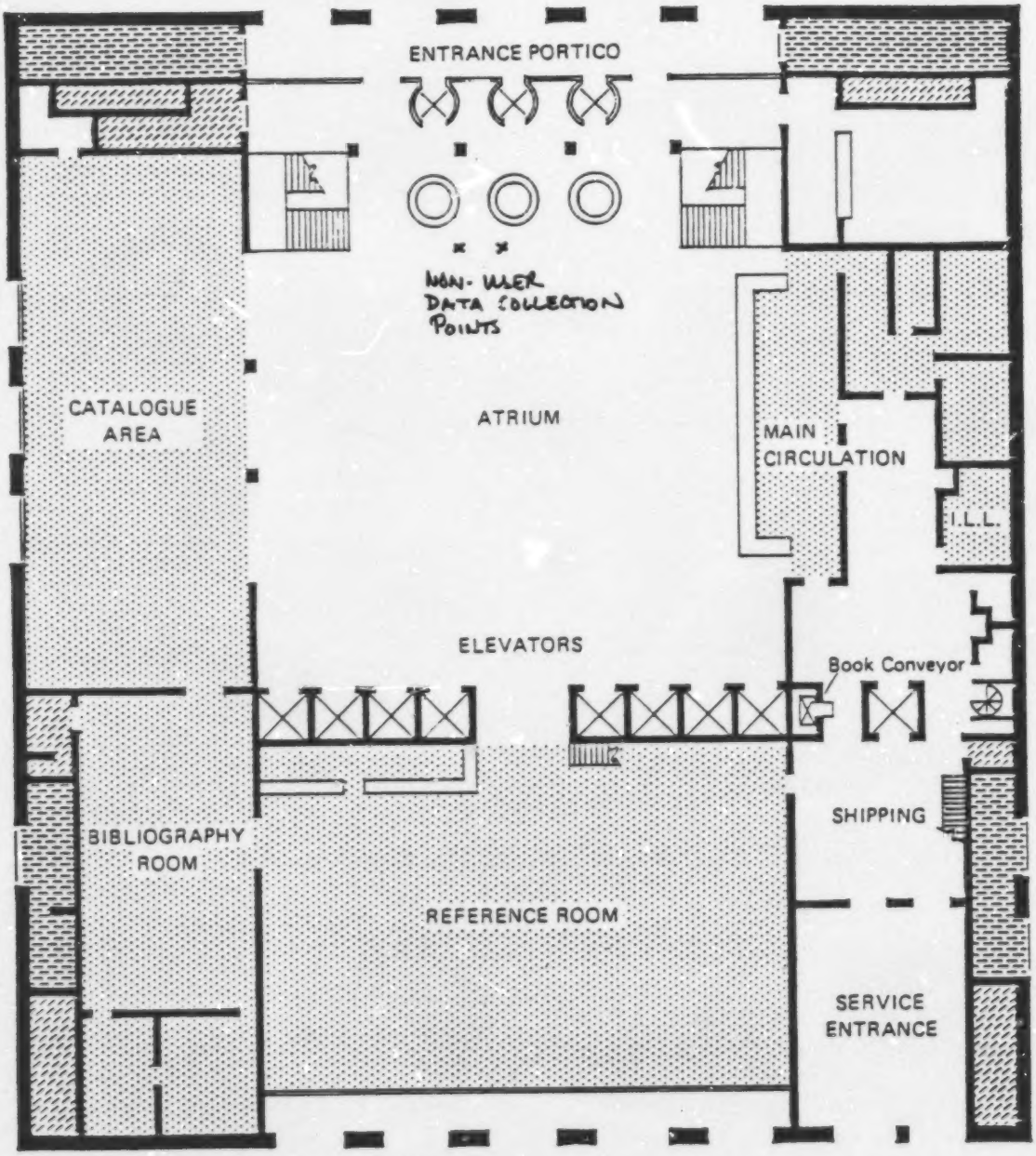

ENTRANCE PORTICO
BOBCAT TERMINALS
CATALOGUE AREA
CARD BANKS
USER DATA COLLECTION AREA: CARD AND COMPUTER CATALOGS
ATRIUM
MAIN CIRCULATION
I.L.L.
ELEVATORS
Book Conveyor
SHIPPING
BIBLIOGRAPHY ROOM
REFERENCE ROOM
SERVICE ENTRANCE

MAIN FLOOR


ENTRANCE PORTICO
NON-USER
DATA COLLECTION
POINTS
CATALOGUE
AREA
ATRIUM
MAIN
CIRCULATION
I.L.L.
ELEVATORS
Book Conveyor
SHIPPING
BIBLIOGRAPHY
ROOM
REFERENCE ROOM
SERVICE
ENTRANCE

MAIN FLOOR

TABLE 2
TURNSTILE DATA: NUMBER OF PERSONS ENTERING BOBST
LIBRARY DURINC DATA COLLECTION

Month	Total # entered Library	# Days Library Open	Average Daily use	Type of data Collected during Month
December 83	148,121	28	5,290	CLR-Phase I
February 84	169,988	29	5,862	CLR-Phase I
March 84	165,193	31	5,361	CLR-Phase II
April 84	198,102	30	6,603	CLR-Phase II Special Study
May 84	149,918	26	5,738	CLR-Phase II Special Study
June 84	71,008	26	2,731	Interview
July 84	82,393	25	3,296	Interview

TABLE 3A
BREAKDOWN OF NEW YORK UNIVERSITY ENROLLMENT

	Spring 83-84	Summer 83
Undergraduates	14,231	3,043
Graduate		
Non-Business	9,761	3,063
Business	4,147	2,429
Professional Schools		
Law	2,262	252
Medicine	702	---
Dentistry	722	---
Continuing Education	12,863*	5,174*
TOTAL	44,296	13,961

* Do not have access to library without purchase of special ID card.

TABLE 3B
1983-84 NYU INSTRUCTIONAL STAFF

School	Full-time	Part-time Fall	Part-time Spring
Business	192	96	90
Dentistry	112	499	502
Foundation	239	376	338
Inst. of Fine Arts	17	17	13
Gallatin	0	45	41
School of the Arts	74	140	126
Courant Institute	35	0	0
Library	43	1	2
Law	85	63	88
Administration	0	3	3
GBA	29	23	26
Social Work	16	98	100
Arts & Sciences	435	274	264
Cont. Education	30	895	449
TOTALS	1037	2530	2042

2) Study Sample

Table 4 provides statistics on the number of people approached during the CLR study. Appendix B provides similar statistics for the NYU and Interview studies. Excluding those who did not meet the screening criteria, the rate of decline (i.e. the percentage of individuals approached who refused to participate) for all components ranged between 36% and 51%. The number of people approached who had already participated increased as the study progressed. This was particularly noticeable among nonusers. In addition, locating subjects who had "never used Bobcat" was difficult. Over 1700 Bobcat users were approached before 477 nonuser forms were completed.

Data collectors indicated the sex and approximate age of each person who refused to participate. As can be seen, the number of males and the number of females who declined to participate are almost equal. A similar distribution was found for those who actually completed the questionnaires. Registration statistics for the Spring 1984 semester indicate that these findings reflect the breakdown by sex of the student population (47% male, 63% female).

TABLE 4
CLR STUDY PARTICIPANTS

	USER	NONUSER
Declined to participate		
Sex		
Male	250	298
Female	240	315
Age Group (estimated)		
15-19 years	96	109
20-34 years	358	299
35-54 years	24	84
55-64 years	7	20
65 + years	--	1
Total Decline:	490	513
Screened not eligible:		
Previously participated in study	93	118
Library Staff	17	81
Volunteer	6	4
Bobcat User(nonuser study only)	--	1709
Total Screened:	116	1908
Number of forms excluded due to gross incompletes:	0	0
Number of completed forms:	810	477
Total number of people approached:	1379	2898

D. DATA ANALYSIS

The CLR Study data was analyzed by the Division of Library Automation, University of California at Berkeley. This was carried out according to contract and included a comparison of New York University results with those found for the 7 members of the Association of Research Libraries that participated in the original CLR study. Analysis followed the CLR model.

The NYU study data was cleaned, coded and entered at the New York University computing facilities. Analysis was done by the research team and will continue, because the findings are extensive. A qualitative analysis of comments regarding system problems and suggestions is under review. The interview data was coded and analyzed by the research team with the volunteer librarians who collected it. Due to the highly individual responses, a qualitative analysis was done which allowed the categorization of searches and criteria of success. An inventory of search errors was also completed.

The study design included a plan to analyze the TCP files that record the searches done on each Bobcat terminal. This would provide a transparent collected source of data useful for search verification and an indication of the population's search choices. This file includes all command information as well as a record of the actual item/s searched. Preliminary review of the

files was informative on the types of commands used; however, without a statistical sorting program it was not feasible to isolate the searches on which data had been collected or to summarize the logs in any systematic way. Geac is currently developing programs to sort and categorize the TCP files. Once these are tested, a complete analysis of TCP files on all days that data were collected and a search-specific analysis of NYU Study and Interview searches will be completed.

VI. RESULTS

A. CLR STUDY RESULTS

Appendix C presents system-specific data collected on the Likert-scale questions. Raw frequencies and all other statistical tables are available from the authors. Data collected at the Graduate Business Administration (GBA) Library has been removed since 1) the students most likely to use this library are part-time, graduate, business students; 2) business students at New York University are apt to be male and older; 3) the searches conducted by these students may be different from searches conducted by students using the main library; and 4) the size of the GBA user and nonuser samples is too small to permit even tentative conclusions regarding the differences and/or similarities between the subjects and searches.

1) CLR User Study Results: Respondents completed 810 CLR user questionnaires. The sample consisted of approximately equal numbers of males and females of which about 2/3 were between 20 and 34 years. The majority were undergraduate students, and less than 5% of the sample identified themselves as faculty members. Half of the respondents reported that their primary field of study was arts & humanities. Most were involved in course work and required information sought for class reading or a course paper.

Ninety percent of the sample reported they used the Library at least monthly. Although almost 60% reported using the computer catalog on most or every visit, only 35% indicated they used the card or microfilm catalog on most or every visit. This frequent usage of the computer catalog was not reflected in use of another computer system. Less than a third reported they use another computer catalog weekly and over 35% indicated they never use a computer.

When subjects were asked about the search they had just completed, most reported they had conducted a search for a subject or a specific book and that they were apt to have used an author's name or subject heading. Approximately one third of the CLR users indicated they found all or most of what they were looking for in the search, while a fifth reported they had found nothing. Despite this finding, over 75% of the users reported their search was very or somewhat satisfactory and over 90% noted they felt very or somewhat favorable toward the computer catalog. When asked to compare the computer catalog and card catalog, 65% rated the computer catalog better, whereas approximately a quarter felt the card catalog was better.

Most subjects did not seek help from a library staff member during the search. When help was obtained, it was likely to have come from the computer screen. Terminal instructions were also the way most respondents had initially learned to use the system. They were most likely to have

first heard about the computer catalog by noticing a terminal rather than through a formal introduction.

a) CLR User Study-NYU compared with ARL Libraries: A comparison between New York University and the 7 ARL libraries that have utilized the CLR questionnaire revealed few differences. The samples resembled one another in terms of age, education, sex, and frequency of library usage. The types of searches conducted by respondents in each sample were similar, although New York University users were slightly more likely to conduct an author search. An examination of the Likert-type questions showed the New York University respondents were more likely to agree strongly that a search by author is easy and a search by subject is difficult.

The majority of differing responses between New York University and the 7 libraries were related to system-specific questions. For example, the NYU sample was more likely to have learned to use the computer catalog or to have gotten help, when conducting the search, from the terminal screen; the ARL sample was more likely to indicate that assistance came from printed instructions or from library staff. Differences were also found in the specific features, materials or improvements desired.

b) CLR User Study - Comparison of Success and Attitudes: Cross-tabulations were performed to compare several questions related to users' success and/or attitudes. As previously indicated, less than 25% of the CLR user sample reported that their search was somewhat or very unsatisfactory. When levels of success (as defined in the CLR questionnaire) were compared relative to satisfaction, it was found that those people who reported feeling unsatisfied were also likely to report they had not found what they were looking for. Yet, among the 629 satisfied respondents 283 or 44% indicated they found all or more than they were seeking, while 56% found only some or nothing of what they sought.

Similar results were found when the amount retrieved was contrasted with attitudes toward the computer catalog. The majority of subjects indicated they held a favorable attitude, while those who felt unfavorable tended to find only some or nothing of what they were seeking.

The relationship between user satisfaction and attitudes toward the computer catalog was in the direction expected. Those who were most satisfied also tended to be most favorable. This however did not hold in the opposite direction. Thirty-four people held very favorable attitudes toward the computer catalog yet reported very unsatisfactory searches.

The satisfied subjects were almost equally split when asked if they had found any additional items of interest. Those who reported being unsatisfied, however, were more likely to have found nothing additional. Although the majority of respondents viewed the computer catalog as a better place to search than the card catalog, those who indicated it was worse were more likely to be unsatisfied. When examining only those subjects who indicated their search was unsuccessful, 44% said the computer catalog was worse and 44% said it was better. Likewise, when asked to compare the computer catalog to

the other catalogs, the majority of the 98 respondents who viewed the computer catalog as worse indicated finding only some materials (or none) during their search.

The level of satisfaction and the favorable attitude toward the computer catalog reported by subjects did not appear related to such factors as frequency of library usage, frequency of computer catalog usage, usage of the card catalog, or usage of another computer system. Neither did satisfaction vary across age or school affiliation.

An examination of the amount of information retrieved relative to the respondent's frequency of library use, frequency of computer catalog use, and frequency of card catalog use revealed few differences in success rates. More respondents, however, who use the card catalog daily reported they did not find all they looked for. Age and present affiliation also did not appear differentially related to success.

2) CLR Nonuser Study Results: Demographically, the nonuser sample resembled the user sample. The nonuser sample consisted of approximately equal numbers of males and females. Over 50% were between 15 and 34 years old. Approximately half were undergraduates and very few were faculty members. Although the differences were small, the nonuser sample included a greater percentage of respondents from the business and medical fields than the user sample. The majority of respondents reported they are currently involved in course work.

Although 75% of the nonuser sample reported using the library at least weekly, over 10% used the card catalog occasionally, rarely or never. When nonusers were asked the type of search they usually conducted in the card catalog, only 35% of the sample provided a response and over 20% of these reported they do not use the card catalog. When subjects were asked why they had not used the computer catalog, 19% reported they had no need for any library catalog. Two other reasons frequently indicated were the time needed to learn the system and not having received training sessions. When the sample was asked how long they felt it would take to learn to use the computer catalog, however, over 50% indicated less than 30 minutes. More than 60% felt it would be somewhat or very easy to learn.

Even without experience using the computer catalog, 90% reported a favorable attitude toward it and 31% indicated the computer catalog was probably a better place to conduct a search than the card catalog. Despite this finding, 255 subjects noted they were unlikely to use the computer catalog in the future.

a) CLR Non User - NYU Compared with ARL Libraries: The two samples are very similiar. This is seen in demographic indicators such as sex, age, level of academic affiliation, and academic focus. In addition, attitudes concerning the computer catalog and respondents' reasons for not using the system are similiar.

B. NEW YORK UNIVERSITY (NYU) STUDY RESULTS

Appendix B reports data from the NYU Bobcat and Card Catalog Study questionnaires. Demographically the computer catalog users and card catalog samples resembled one another. Although the Bobcat sample tended to be younger

(57.9% between 15-24 years vs. 29.4% of the card catalog users), they did not differ greatly in their university ranking nor in the focus of their academic work. The majority of respondents in both catalogs came from the arts and humanities or social sciences. Less than 6% of the sample in either catalog came from the physical and biological sciences. Both types of users were likely to use the library facilities frequently. Over 70% in each sample noted they came to the library at least weekly and less than 4% said they had never come to the library before that day.

Part 1 of both the Bobcat and card catalog questionnaires was primarily used to provide information that would permit replication of the search (i.e., what searched for, call numbers, what found, etc). Regarding types of searches, in both catalogs, the number of subject searches and searches for a specific book exceeded the number of searches for books by a specific author. Only 13 Bobcat users (6%) and 5 card catalog users (4%) indicated that they had conducted bibliographic searches exclusively. Eighteen users out of 334 were looking for other unidentified information.

The most common point of entry as indicated in Part 1 of the Bobcat questionnaire was by subject. Card catalog users, however, were as likely to begin a search with an author's name as a subject. The first three questions from Part 2 of the special study questionnaire also requested search information. This followed the format used in the CLR questionnaire.

In Part 2, the responses of Bobcat and card catalog users differed regarding amount of information found. Sixty-five percent of the card catalog users found all or more than they were looking for, while only 34.8% of the Bobcat users had similar results. Twenty-one percent of the Bobcat users and 17.5% of the card catalog users checked that they had found nothing they were looking for. Despite this difference, both Bobcat and card catalog users were likely to report their searches were satisfactory. Seventy-five percent of the Bobcat users and 81% of the card catalog users indicated their searches were somewhat or very satisfactory. Both types of users were also likely to hold a favorable attitude toward the catalog they searched. When asked to compare the two catalogs in terms of successfulness when conducting a search, respondents tended to favor the catalog just searched. In addition, approximately a quarter of both the Bobcat users and card catalog users indicated that the catalogs were equally successful places to search.

Attempts were made to elicit a definition of a successful catalog search. Appendix B presents a schematization of the open-ended responses. The most frequent responses, however, by either type of catalog user, were: finding a known item; finding relevant information; and finding the book on the shelf. In addition, 19% of the card catalog users stated that finding something more than what they were looking for (serendipity) was a criterion for success.

General information concerning the computer catalog was solicited from both Bobcat and card catalog users. Both Bobcat and card catalog users were likely to have heard about the computer catalog by noticing a terminal and to have used it for the first time between spring 1983 and January 1984. More than 40% of subjects in both catalogs reported they never used another computer system other than Bobcat.

1) NYU Study: Comparison of Success & Attitudes: Part 2 of the NYU Study indicated that card catalog users were more successful than computer

catalog users. Yet, when success was examined relative to frequency of library use and frequency of catalog use, there were few differences. When frequency of use of another computer system was compared with success, differences were found. It appears that frequent use of another computer system results in more successful searches in the card catalog, but not in the computer catalog. This is probably an artifact of small cell sizes and the fact that 50% of the card catalog users did not answer this question.

The majority of respondents in both catalogs were satisfied with their searches. The users who reported feeling unsatisfied tended to find nothing they were looking for and did not come across other items of interest. Most users held favorable attitudes toward the catalog searched. Success was compared relative to these attitudes. Although Bobcat users were more likely to indicate they found none or only some of what they were looking for, their attitude toward the catalog searched was equally favorable to that of the card catalog users. The favorable attitude of both card catalog and Bobcat users does not appear to vary by how often the subjects come to the library nor by how often they use the library or the catalog.

C. INTERVIEW RESULTS

A total of 34 Bobcat, 18 card catalog and 2 combined catalog interviews were conducted. Interview data are included in Appendix B. The majority of searches were for either a subject or an author. Sixty-one percent of the users interviewed felt that their searches were successful, even if they found only part of what they were looking for. Many of those who said that their searches were not successful found some of the information they were seeking. Only 9 of the 54 persons interviewed found nothing. Finding what is being sought and expectation of what the catalog should provide were clear discriminating factors in judgments of success.

The interviews had been designed to provide information on search procedure as well as outcome. Since the interviewer tracked through the search with a user, a considerable amount of information was collected on how the search was organized. The sample provided more information on subject searches than on other types since these vary so much from individual to individual. None of the subject searchers consulted the Library of Congress Subject Heading books and only 2 of the 13 were even familiar with them. Subject searchers assumed that the designation they gave the subject was the one that would be used in the catalog. The cross references provided in the card catalog assisted searchers there; however, this safety net was not present for Bobcat users. In most cases where the information sought was not found on the first subject designation, the users persevered by looking for terms they thought were related. When asked, most respondents reported their sense that subject categories were equivalent to natural language.

Only one keyword search was conducted. The preliminary results from the CLR and NYU studies also indicated that this function was not being used extensively. This finding combined with users' assumptions that subject searches were possible according to everyday or natural language categories provided evidence that users were not aware of the alternatives offered by the computer catalog. Bobcat provides the options of author, title and subject keyword searches, any of which might have yielded results more useful than

those found in many of the subject searches. Once the TCP File data is analyzed, the library will be able to assess the proportion of keyword searches done in the overall user population. Until this is completed, users are being informed via information screens that this sophisticated capability is an option and that it should be experimented with. The small usage of it raises the question of how effectively the capabilities of the Bobcat system have been diffused among users. Whether this is an issue related to training or to users' partial assimilation of information is yet to be studied.

The interviews helped identify sources of error in using the catalogs and indicated that users had as much difficulty using the card catalog as they did in using Bobcat. Errors resulted from lack of familiarity with catalog organization and subject headings; misunderstanding of the scope of the public catalog; spelling errors; and lack of information on how to organize a search.

Respondents varied in how they judged the successfulness of their searches. Retrieval of all or part of what they were looking for contributed to a "success" judgment, but it was not sufficient. Many stated that what they had expected to find vs. what they found was in part related to their assessment of what the catalog should contain. This resulted in inconsistent patterns of perceptions of success relative to items searched and retrieved. Errors in the use of the computer or card catalog were found across all educational levels. Analysis of the comments made regarding satisfaction revealed few differences between the card and online catalog users. Most reported having been satisfied with the search regardless of outcome. Furthermore, all but 3 of the 54 reported satisfaction with the library in general. Finally, several of the interviews were concluded with some type of catalog instruction involving such aids as tracings, Library of Congress subject headings, keyword searches and chain commanding.

VII. DISCUSSION

As expected, it was found that users participating in the study generally liked the computer catalog and had few complaints. Even respondents who had little or no experience using Bobcat often rated it favorably, considered it a satisfactory place to search, and preferred it to the card catalog. Furthermore, the improvements most frequently requested involved increasing the number and availability of terminals rather than changing the system features.

Bobcat (and for that matter card catalog) users, however, were not always successful in their searches. Although over 80% indicated they found something, less than 40% found everything they were looking for. Individuals who were not satisfied with the computer catalog (i.e. felt it was unsatisfactory, held an unfavorable attitude, did not rate it better than the card catalog, etc.) tended to find less than they were searching for. The converse was not found. Those who were satisfied did not appear to relate their attitude to the successfulness of the search.

It is unclear why respondents were satisfied despite conducting somewhat or entirely unsuccessful searches. This may emanate from a desire to please the data collectors or librarians, or as a recognition of dependence on the library. Bobcat is an innovation for the library, and subjects may find it difficult to evaluate it unfavorably. Thus, due to Bobcat's novelty, library users may favor the new technology regardless of its accuracy and/or utility. Concurrent with this are reports of a fascination with the online catalog which are expressed in language such as "It's fun," "I enjoy it," "I can't live without it..." This, combined with loyalty and commitment to using the

computer catalog even after numerous unsuccessful searches, extended from undergraduates who adopted a Bobcat as the mascot for the basketball team, to senior researchers who recognized its limitations but nonetheless used it heavily.

The fact that users were highly enthusiastic about the online technology confirmed the initial impetus of this research: to test whether Marshall McLuhan's provocative assertion, "the medium is the message," might be operating at libraries with computerized catalogs. McLuhan writes:

> In a culture like ours, long accustomed to splitting and dividing all things as a means of control, it is sometimes a bit of a shock to be reminded that, in operational and practical fact, the medium is the message. This is merely to say that the personal and social consequence of any medium...result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology...(McLuhan, 1964, 23).

If McLuhan is correct, then efficiency attributed to Bobcat and the enthusiasm it elicits might in part result from the new scale that is introduced by the medium of the online catalog. Perceptions that the system was faster than the card catalog and that it yielded more items were, in fact, reported by many of the Bobcat interviewees.

Whether these social psychological assessments will continue to be associated with Bobcat is a question for further research. Certainly, if the literature on the diffusion of innovations is consulted, a projection could be made that, with time, assessments regarding specific information sought and anticipated yields should become more realistic and normative.

Another factor to be taken into account is that the highly favorable attitudes expressed may be a reflection of the generalized computer culture prevalent in New York City and at New York University. Although individuals are exposed to computers and are expected to be able to operate them, the majority of the respondents had little or no computer experience and may have been unwilling or unable to admit they were unsuccessful when using Bobcat. Indeed, Bobcat provided the user an opportunity to become computer-literate, if only on a very simple level.

Unlike most computer systems, Bobcat does not require a special entrance code or programming knowledge. Furthermore, its visibility and easy access from the main lobby are ecological variables which may effect its use and evaluation. As Tressier, Crouch, and Atherton (1977) argue, in addition to success, environmental factors should be considered when studying definitions of satisfaction. Bobcat's easy access permits experimen- tation with the system without requiring instruction. Autonomy is encouraged by Bobcat's user-friendly interface. Thus, it was not surprising that most users reported they learned to use the online catalog from terminal instructions which were also the primary source of help during a search. The computer catalog provided feedback to an inquiry even if the specific item sought was not located. This in itself may have been satisfying. Perhaps even if the item was not found, a search was considered satisfactory if the terminal instructions were properly followed.

Another possible explanation for the success-satisfaction differences is that these are not congruent terms. If library patrons habitually do not locate the item sought, the expectation brought to a search may be to find less than one

is looking for. Additionally, library patrons may be ego-involved in knowing how adequately to use a library catalog, something commonly assumed of any college student. Respondents may have been unwilling to admit a lack of catalog competency. This view is supported by comments of the interviewees who reported obtaining help from librarians. Therefore, admitting that one is unsatisfied with a search because one has not mastered the use of a library catalog may be threatening and unacceptable. Since this study focused primarily on the search outcome rather than the search process, minimal information regarding patterns of error and success is available. Without adequate knowledge of search patterns it is difficult to identify the aspect of the search to which a satisfactory evaluation is attached.

The interview component, however, provided some information on how people actually searched. Although of limited generalizability due to the small sample size and the limited testing of the instrument, the interviews pointed out several sources of user errors which may account for less than complete success rates. For instance, despite notice to the contrary on the computer screens, users seemed to expect that subject searches would be performed by the computer according to natural language categories. Similar results were found in the NYU Study. Replication of these searches demonstrated that users often failed to use appropriate subject headings. Their assessment of success, however, did not always reflect an understanding of this failure.

The consensus among librarians who participated in the interview part of the study was that user knowledge of catalog organization, regardless of type of catalog, had to be improved. With regard to the online catalog, increased awareness of the keyword search option is critical because so many users are conducting subject searches. Furthermore, the interview experience provided a hands-on opportunity to observe how the user approaches bibliographic tasks. This has generated considerable enthusiasm at New York University for developing new programs of user assistance, and a task force on subject searching has been established.

Since success and satisfaction may be ambiguous terms, adequately defining success is problematic. In an attempt to produce a definition of success specific to the NYU sample, respondents were asked to define a "successful search". The overwhelming response was "finding the book(s)", either for known items or subjects. The meaning of "finding the books," however, is somewhat unclear, i.e. whether the physical book is found on the shelf or whether the reference is located in the catalog. Users were not asked to define satisfaction. Yet, it was clear that an affirmative evaluation meant that they felt that the services delivered were sufficient to their needs and also that the system was useful and efficient for searching the Library's holdings.

Several difficulties were encountered during the data collection. The CLR questionnaire, although well tested at other sites, contained questions that were ambiguous or inappropriate to New York University. The forms required up to 20 minutes to complete; therefore, only patrons with adequate free time could participate in the study. Recruitment in the card catalog area for the NYU study proved to be difficult. This was due in part to the environmental difficulties of multiple entry points into the catalog, and in part to the general reluctance of card catalog users to participate. Card catalog users often reported they were not conscious of their decisions or of their attitudes toward the catalog. Perhaps the newness of the online catalog as well as the search specificity made users more capable of evaluating its usage, whereas card catalog users preferred to continue their searches undisturbed.

Beyond insight into computer catalogs, search patterns, and success, this study provided positive benefits for the library staff who participated. Most reported that the process of collecting data better informed them of how patrons used catalogs. With the results of the study, the Library's Online Catalog Instruction Task Force will examine training issues related to user search errors, particularly for subject searches. The Task Force will recommend modifications of terminal screen displays and additional means of assisting patrons online if necessary. The group will also explore possibilities for enhancing publications and signage about Bobcat use. System designers will use the results to evaluate user requests for technological improvements and data base expansion.

At a time when the library community is just beginning to provide state-of-the-art technology for public use, an assessment of online catalog strengths and weaknesses is critical. At all stages of its online catalog development, New York University's primary objective has been to improve users' access to materials. The results of this study will further that objective.

While Bobcat has clearly satisfied many users, the findings of the study reinforce the Library's concerns that success rates need to be improved. Retrospective conversion of records not yet in the data base is one solution; better bibliographic instruction built into the online system is another. It is also clear that more research needs to be conducted with a direct focus on success. The CLR study provided insight into users' satisfaction and their reaction to various system features. The NYU study offered researchers a look at users' approaches to a search and their success with it. The Interview study pointed out the process and problems of individual searches, with possibilities for qualitative analysis not realized with the two other study components. Given the importance of understanding users' interaction with library catalogs and their expectations of success, further experimentation with an interview format such as the one designed at New York University seems appropriate for future research and can build upon the results reported in this study.

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APPENDIX A

SUPPLEMENTAL QUESTIONS FOR USER AND NON-USER QUESTIONNAIRES

QUESTIONNAIRE FOR COMPUTER CATALOG USERS

Please circle the answer you think is most appropriate and complete the statements.

1. When I use the computer catalog, I consider a search to be successful if: (please answer in a specific and concise statement)

_____

_____

2. Compare the success of the computer and card catalogs as a place to search:

a. computer catalog more successful
b. card catalog more successful
c. they are equal
d. neither catalog successful

3. In general, do you look in both the computer and card catalogs to complete your searches?

yes
no

4. I am affiliated with:

a. New York University
b. The Cooper Union
c. The New School
d. Parsons School of Design
e. Hebrew Union
f. other university
g. other

THANK YOU

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QUESTIONNAIRE FOR NON-COMPUTER CATALOG USERS

Please circle the answer you think is most appropriate and complete the statements.

1. I came to this library to:
(Mark ALL that apply)

a. do research
b. find a specific book or article
c. find out something about a subject or topic
d. study with materials I already have
e. use course materials in the reserve room
f. socialize
g. meet someone and then go somewhere else
h. attend a class
i. other: (please specify)_____
_____
_____

2. When using the card catalog, I search for what I want by:
(Mark ALL that apply)

a. a complete author's name
b. part of an author's name
c. a complete title
d. a topic or words
e. a subject heading or headings
f. I do not use the card catalog

3. When I use the card catalog, I consider my search to be successful if: (please answer in a specific and concise statement that tells us what you consider to be a successful search)

_____
_____

4. If you had a choice between using a card catalog and a computer catalog, which would you use:

a. card catalog
b. computer catalog
c. never use catalogs

4.b. why?_____
_____
_____

5. I am affiliated with:

a. New York University
b. The Cooper Union
c. The New School
d. Parsons School of Design
e. Hebrew Union
f. other university
g. other

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THANK YOU

APPENDIX B

NYU AND INTERVIEW STUDY DATA

NYU STUDY PARTICIPANTS

	BOBCAT	CARD CATALOG
Declined to Participate:		
Sex		
Male	76	54
Female	65	61
Age Group (estimated)		
15-19 years	25	18
20-34 years	96	17
35-54 years	19	14
55-64 years	2	5
65 + years	--	1
Total Decline:	141	115
Screened not eligible:		
Previously participated in study	71	36
Library Staff	1	13
Volunteer	--	9
Bobcat user*	--	219
Used neither catalog*	--	12
Total Screened:	72	289
Number of forms excluded due to gross incompletes:	28	23
Number of usable completed forms:	218	116
Total Number of people approached:	459	543

*Represent approach errors due to positioning to data collection at exit from card catalog. These people were intercepted yet they had not been using card catalog.

INTERVIEW STUDY PARTICIPANTS

Declined to Participate:	
Sex	
Male	10
Female	14
Age Group (estimated)	
15-19 years	6
20-34 years	15
35-54 years	2
55-64 years	1
65+ years	--
Total Decline:	24
Screened not eligible:	
Previously participated in study	5
Library Staff	2
Volunteer	--
Graduate Student	49
Total Screened:	56
Number of Completed Forms:	54
Total Number of people approached:	134

SEARCH CHOICE
BOBCAT (N=218)
CARD CATALOG (N=116)

(These questions may contain multiple responses and therefore percentages may exceed 100%.)

	Bobcat		Card	
	Freq.	pct. of cases	Freq.	pct. of cases
(Q100) What person was trying to find:				
Specific book, journal, magazine	71	(32.6)	45	(38.8)
2+ specific books, etc.	14	(6.4)	10	(8.6)
Any books, etc. on a subject	75	(34.4)	36	(31.0)
2+ Books etc. by a specific author	45	(20.6)	20	(17.2)
Supplementary information	1	(.5)	1	(.9)
Other information	12	(5.5)	4	(3.4)
Missing	0		0	

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DEFINITION OF SUCCESS BY SUCCESSFUL SEARCHERS
(i.e. searches which resulted in obtaining a call number)

	Bobcat		Card	
	Freq.	pct. of cases	Freq.	pct. of cases
Find a known item	78	39.2	59	59.0
Find a call no/area in stacks	26	13.1	7	7.0
Find relevant information	86	43.2	39	39.0
Serendipity	13	6.5	19	19.0
Generic: info is in catalog	5	2.5	1	1.0
Do not need to go to other catalog	3	1.5	1	1.0
Search is quick & easy	16	8.0	5	5.0
Book on the shelf	29	14.6	27	27.0
Find needed information	23	11.6	4	4.0
Helps with research	6	3.0	2	2.0
All information is in catalog	7	3.5	1	1.0
If use step by step	1	.5	--	----
Miscellaneous attributes of Bobcat	2	1.0	--	----
	198		98	

NYU STUDY: SEARCH REPLICATION BY LIBRARY STAFF

Catalog	Online Catalog Bobcat	Card Card
NON-SUBJECT:		
Correct Searches:	62	57
User Error:	6	10
SUBJECT:		
Correct Searches:	42	28
Found Something but could have found more:	20	9
Found nothing: (User error insofar as did not know how to conduct a subject search)	14	6

NUMBER OF SEARCHERS INTERVIEWED
BY CATALOG AND TYPE OF SEARCH

Type of Search	Bobcat	Card Catalog	Bobcat & Card Catalog	Total
Subject	13	8	-	21
Author	7	5	-	12
Title	1	1	-	2
A/T (Menu)	2	-	-	2
Author & Title	2	1	1	4
Subject & Author	2	1	1	4
Subject & Title	2	-	-	2
A/T & Title	1	-	-	1
Author & UNISEC	1	-	-	1
Subject, Author & Title	2	2	-	4
Subject, AutT, & AutK	1	-	-	1
Total	34	18	2	54

INTERVIEW: SEARCHES AND SUCCESS
BY TYPE OF SEARCH

1. Type of Search: SUBJECT (N=21)

Catalog Type	# Subjects Searched	Rank	Actual Retrieval	# Retrieved -#Searched	Search Perceived Successful
Bobcat	5	Jun/Senior	2	-3	yes
"	1	Freshman	1	0	yes
"	1	Freshman	2	1	partially
"	5	Staff	0	-5	no
"	7	Grad MA (GBA)	1	-6	no
"	2	Jun/Senior	7	-5	no
"	1	Jun/Senior	2	1	yes
"	2	NYU/Comm	3	1	partially
"	1	Jun/Senior	3	2	partially
"	6	Grad MA	3	-3	no
"	6	Other	6	0	no
"	1	Jun/Senior	3	2	yes
"	1	Faculty (NS)	1	0	yes
Card	1	Jun/Senior	2	1	yes
"	4	Faculty (NYU)	4	0	partially
"	2	Jun/Senior	4	2	partially
"	2	Fresh/Soph	1	-1	yes
"	3	Jun/Senior	0	-3	yes
"	2	Grad PhD	2	0	yes
"	1	Staff/other	1	0	no
"	1	Grad PhD	0	-1	no

2. Type of Search: AUTHOR (N=12)

Catalog	Authors Searched	Rank	Actual Retrieval	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	1	Jun/Senior	1	0	yes
"	1	Fresh/Soph	1	0	yes
"	6	Grad PhD	3	-3	yes
"	1	Grad PhD/Staff	1	0	yes
"	3	Grad PhD	0	-3	no
"	1	Jun/Senior	1	0	yes
"	1	Grad PhD	1	0	yes
Card	8	Grad PhD	6	-2	yes/partially
"	1	Grad PhD	0	-1	no
"	3	Jun/Senior	4	1	yes
"	2	Grad MA	1	-1	yes
"	1	Grad PhD	1	0	yes

3. Type of Search: TITLE (N=2)

Catalog	#Titles	Rank	Actual Retrieval	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	1	Jun/Senior	1	0	yes
Card	1	Grad MA	5	4	yes

4. Type of Search: AUTHOR/TITLE (N=2)

	#Author/Title Searches	Rank	Actual Retrieval	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	1	Jun/Senior	1	0	yes
"	1	Grad MA	0	-1	no

5. Type of Search: AUTHOR AND TITLE (N=4)

	#Authors Searched	#Titles Searched	Rank	Actual Retreival	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	7	1	Faculty	2	-6	yes
"	5	2	Other	2	-5	no
Card	1	1	Jun/Senior	0	-2	no
BC & CC	2	1	Grad PhD	2	-1	yes

6. Type of Search: SUBJECT AND AUTHOR (N=4)

	#Subjects Searched	#Authors Searched	Rank	Actual Retrieval	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	5	1	Grad PhD	0	-6	no
"	2	1	Grad Prof	19	16	yes
Card	10	1	Jun/Senior	3	-8	yes
BC & CC	1bc/1cc	1bc	Grad PhD	5	3	yes

7. Type of Search: SUBJECT AND TITLE (N=2)

	#Subjects Searched	#Titles Searched	Rank	Actual Retrieval	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	3	2	Jun/Senior	6	1	yes
"	5	1	Jun/Senior	3	-3	yes

8. Type of Search: AUTHOR/TITLE AND TITLE (N=1)

	#Authors/ Title Searched	#Titles Searched	Rank	Actual Retrieval	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	14	1	Grad PhD	9	-6	partially

9. Type of Search: AUTHOR AND UNISEC (N=1)

	#Authors Searched	#Unisec Citations Searched	Rank	Actual Retrieval	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	1	18	Grad PhD	17	-2	yes

10. Type of Search: SUBJECT, AUTHOR AND TITLE (N=4)

	#Subjects Searched	#Authors Searched	#Titles Searched	Rank	Actual Retrieval	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	4	5(A/T)	4	Grad MA	11	-2	partially
Card	1	1	1	Faculty	5+	2+	yes
"	1	3	2	Jun./Sen.	4	-2	yes
Bobcat	1	1(A/T)		Jun./Sen.	2	0	yes

11. Type of Search: SUBJECT, AUTHOR AND AUTHOR KEYWORD (N=1)

	#Subjects Searched	#Authors Searched	#Titles Searched	Rank	Actual Retrieval	#Retrieved -#Searched	Was Search Perceived Successful
Bobcat	1	1	1	Grad PhD	5	2	partially

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APPENDIX C

COMPARISON OF NYU AND MEMBER LIBRARIES

LIKERT SCALED VARIABLES

COMPARISON OF NYU AND ARL MEMBER LIBRARIES

LIKERT SCALED VARIABLES

	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE
11. SEARCH BY TITLE IS DIFFICULT					
(661)*	7.9	4.1	2.1	48.6	37.4
(4115)**	2.7	9.8	12.0	40.4	35.0
12. SEARCH BY AUTHOR IS EASY					
(707)	51.2	40.9	0.7	4.8	2.4
(4157)	34.3	46.9	9.4	6.9	2.5
13. SEARCH BY SUBJECT IS DIFFICULT					
(645)	26.0	14.4	2.3	36.1	21.1
(4003)	8.6	24.9	15.4	30.5	20.6
14. SEARCH BY CALL NUMBER IS EASY					
(368)	40.8	34.5	4.1	11.1	9.5
(2348)	30.3	35.7	21.3	8.3	4.5
15. SEARCH BY AUTHOR-TITLE IS DIFFICULT					
(531)	10.0	4.5	3.6	43.3	38.6
(3200)	3.0	8.8	17.6	34.9	35.7
16. REMEMBERING COMMANDS IS EASY					
(676)	49.9	33.3	3.4	11.8	1.6
(4080)	17.3	43.9	18.0	16.7	4.0
17. FINDING CORRECT SUBJECT TERM IS DIFFICULT					
(612)	33.7	15.4	3.8	35.9	11.3
(3961)	12.3	33.9	19.9	26.6	7.4
18. SCANNING THROUGH A LONG DISPLAY IS EASY					
(679)	45.9	23.0	1.8	21.5	7.8
(4031)	11.4	39.8	19.6	22.6	6.5

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19. INCREASING THE RESULT IS DIFFICULT					
(474)	46.2	16.5	7.0	24.3	6.1
(1433)	9.6	39.8	26.8	17.8	6.0
20. REDUCING THE RESULT IS EASY					
(434)	40.1	16.1	8.5	30.6	4.6
(3540)	9.4	33.1	29.3	22.0	6.2
21. UNDERSTANDING SCREEN EXPLANATIONS DIFFICULT					
(738)	3.8	1.5	1.2	50.8	42.7
(4190)	3.0	9.5	9.9	49.4	28.2
22. USING CODES OR ABBREVIATIONS IS EASY					
(671)	57.4	30.3	2.5	7.6	2.2
(3983)	17.2	50.4	18.0	11.8	2.6
23. UNDERSTANDING CODES OR ABBREVIATIONS IS EASY					
(701)	58.9	31.4	1.9	6.8	1.0
(4137)	16.2	53.1	16.1	11.7	2.9
24. LOCATING CALL NUMBERS IS DIFFICULT					
(677)	6.5	2.8	1.6	57.3	31.8
(4029)	3.4	10.3	11.5	46.7	28.0
25. USING TRUNCATION IS EASY					
(467)	38.5	16.3	7.1	28.5	9.6
(3485)	10.0	32.6	29.7	21.3	6.4
26. USING BOOLEAN OPERATORS IS DIFFICULT					
(413)	15.5	8.7	8.5	48.7	18.6
(1829)	6.5	15.5	29.3	30.9	17.8
27. REMEMBERING EXACT SEQUENCE OF COMMANDS IS EASY					
(625)	59.5	22.4	3.7	12.3	2.1
(3929)	12.0	48.4	20.7	16.4	2.4

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28. UNDERSTANDING INITIAL SCREEN INSTRUCTIONS IS DIFFICULT					
(700)	**5.6**	**1.7**	**1.3**	**58.9**	**32.6**
(1608)	3.1	7.9	10.3	45.8	32.8
29. UNDERSTANDING SINGLE BOOK DISPLAY IS EASY					
(664)	**60.1**	**29.4**	**2.3**	**6.0**	**2.3**
(4022)	22.0	58.2	10.9	7.4	1.6
30. UNDERSTANDING MULTIPLE BOOK DISPLAY IS DIFFICULT					
(631)	**9.7**	**2.9**	**2.5**	**62.6**	**22.3**
(3987)	2.0	8.7	15.1	54.3	19.8
31. INTERRUPING-STOPPING THE DISPLAY IS EASY.					
(589)	**49.6**	**24.8**	**1.9**	**19.9**	**3.9**
(3618)	14.0	41.5	19.3	18.8	6.4
32. TYPING IN EXACT SPELLING IS DIFFICULT					
(672)	**12.9**	**4.8**	**3.0**	**54.3**	**25.0**
(4096)	4.0	17.3	15.5	43.8	19.3
33. KNOWING WHAT IS INCLUDED IS EASY					
(554)	**29.4**	**10.8**	**7.0**	**41.5**	**11.2**
(3876)	6.8	28.3	28.0	29.5	7.3
34. ORDER OF DISPLAY IS EASY TO UNDERSTAND					
(661)	**64.6**	**24.4**	**2.6**	**7.7**	**0.8**
(4090)	13.4	56.4	17.7	9.8	2.6
35. DISPLAYED MESSAGES ARE TOO LONG					
(610)	**8.7**	**4.6**	**4.3**	**65.9**	**16.6**
(4008)	2.3	7.8	23.1	51.8	14.9
36. SELECTING FROM LIST OF CHOICES TAKES TOO MUCH TIME					
(612)	**19.1**	**7.2**	**3.3**	**59.3**	**11.1**
(3918)	3.3	15.4	23.3	47.5	10.6

37. ENTERING COMMANDS DURING SEARCH IS DIFFICULT					
(611)	24.9	8.7	2.9	51.1	12.4
(3761)	5.2	22.0	21.0	41.3	10.6
38. RATE OF RESPONSE IS TOO SLOW					
(672)	29.0	22.9	3.0	37.5	7.6
(4114)	7.1	16.7	16.7	44.7	14.7
39. AVAILABILITY OF SIGNS AND BROCHURES IS ADEQUATE					
(546)	50.7	13.6	6.2	25.1	4.4
(3953)	11.5	52.7	15.0	15.3	5.5
40. SIGNS AND BROCHURES ARE NOT VERY USEFULL					
(473)	19.2	4.2	7.0	59.2	10.4
(3876)	3.5	9.0	18.3	48.8	20.4
41. LIBRARY STAFF ADVICE NOT HELPFUL					
(348)	11.5	8.0	8.0	50.6	21.8
(3193)	3.8	8.6	24.6	40.4	22.5
42. IT IS HARD TO FIND A FREE TERMINAL					
(593)	28.8	15.2	3.4	43.5	9.1
(3997)	8.6	18.1	17.5	41.8	13.9

* NYU TOTAL RESPONSES FOR QUESTION

**ARL TOTAL RESPONSES FOR QUESTION. FORMAT OF PLACING TOTAL RESPONSES UNDER QUESTION IS FOLLOWED THROUGHOUT TABLE.

SYSTEM FEATURES EVALUATION

	YES	NO
43A. KEYBOARD IS CONFUSING		
(775)	4.5	95.5
(4156)	9.4	90.6
43B. GLARE ON SCREEN		
(771)	8.7	91.3
(4138)	8.1	91.9
43C. LETTERS EASY TO READ		
(771)	89.4	10.6
(4136)	85.3	14.7
43D. LIGHTING TOO BRIGHT		
(770)	9.5	90.5
(4133)	8.8	91.2
43E. WRITING SPACE OK		
(769)	81.5	18.5
(4133)	62.9	37.1
43F. NOISE DISTRACTING		
(768)	7.4	92.6
(4125)	11.3	88.7
43G. TABLE HEIGHT RIGHT		
(765)	10.7	89.3
(4121)	8.3	91.7

44. ADDITIONAL SYSTEM FEATURES DESIRED

	NYU*	ARL LIBRARIES*
STEP BY STEP INSTRUCTIONS	7.56 (58)	17.63 (725)
SEARCH BY TITLE WORD	17.60 (135)	15.71 (646)
SUBJECT WORD SEARCH	26.20 (201)	23.35 (960)
LIMIT BY DATE OF PUBLICATION	11.60 (89)	13.06 (537)
LIMIT BY LANGUAGE	12.38 (95)	13.91 (572)
JOURNAL TITLE ABBREVIATION	20.59 (158)	24.72 (1016)
CHANGE DISPLAY ORDER	9.12 (70)	10.94 (450)
VIEW RELATED WORDS	40.93 (314)	47.68 (1960)
SEARCH FOR ILLUSTRATIONS AND BIBLIOGRAPHY	20.59 (158)	18.66 (767)
SEARCH BY CALL NUMBER	7.30 (56)	10.41 (428)
PRINT SEARCH RESULTS	38.72 (297)	26.47 (1088)
SEARCH CONTENTS-INDEX	51.23 (393)	44.13 (1814)
KNOW IF BOOK CHECKED OUT	73.14 (561)	24.79 (1019)
LIBRARY LOCATION OF BOOK	29.85 (229)	12.89 (530)
NONE	1.82 (14)	4.86 (200)
TOTAL RESPONDENTS	767	4110

45. COMPUTER CATALOG SERVICE IMPROVEMENTS DESIRED

	NYU*	ARL LIBRARIES*
MORE TERMINALS	56.57 (430)	48.86 (2022)
TERMINALS IN OTHER LOCATION	55.78 (424)	37.38 (1547)
TERMINALS OUTSIDE LIBRARY	40.78 (310)	41.37 (1712)
COMMAND CHART POSTED	17.23 (131)	28.05 (1116)
MANUAL AT TERMINAL	17.2 (131)	18.75 (776)
MANUAL FOR PURCHASE	4.60 (35)	7.41 (307)
TRAINING SESSIONS	7.76 (59)	11.45 (474)
AUDIO-VISUAL TRAINING PROGRAM	7.89 (60)	9.47 (392)
NONE	11.18 (85)	14.98 (620)
TOTAL RESPONDENTS	760	4138

46. ADDITIONAL KINDS OF MATERIALS DESIRED

	NYU*	ARL LIBRARIES*
DISSERTATIONS	36.49 (273)	23.05 (869)
MOTION PICTURE FILMS	21.52	14.06
GOVERNMENT PUBLICATIONS	29.14 (218)	34.22 (1290)
JOURNAL TITLES	59.09 (442)	16.82 (634)
MAPS	11.89 (89)	13.34 (503)
MANUSCRIPTS	8.42 (63)	8.88 (335)
MUSIC SCORES	9.89 (74)	8.19 (309)
NEWSPAPERS	40.64 (304)	31.36 1182
RECORDS OR TAPES	17.11 (128)	18.99 (716)
TECHNICAL REPORTS	13.10 (98)	19.28 (727)
MORE OLDER BOOKS	40.90 (306)	32.36 (1220)
NONE	5.48 (41)	9.55 (360)
OTHER	3.60 (27)	3.02 (114)
TOTAL RESPONDENTS	748	3769

* PERCENTAGES WILL TOTAL MORE THAN 100, BASED ON MULTIPLE CHOICE OPTION QUESTION.

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